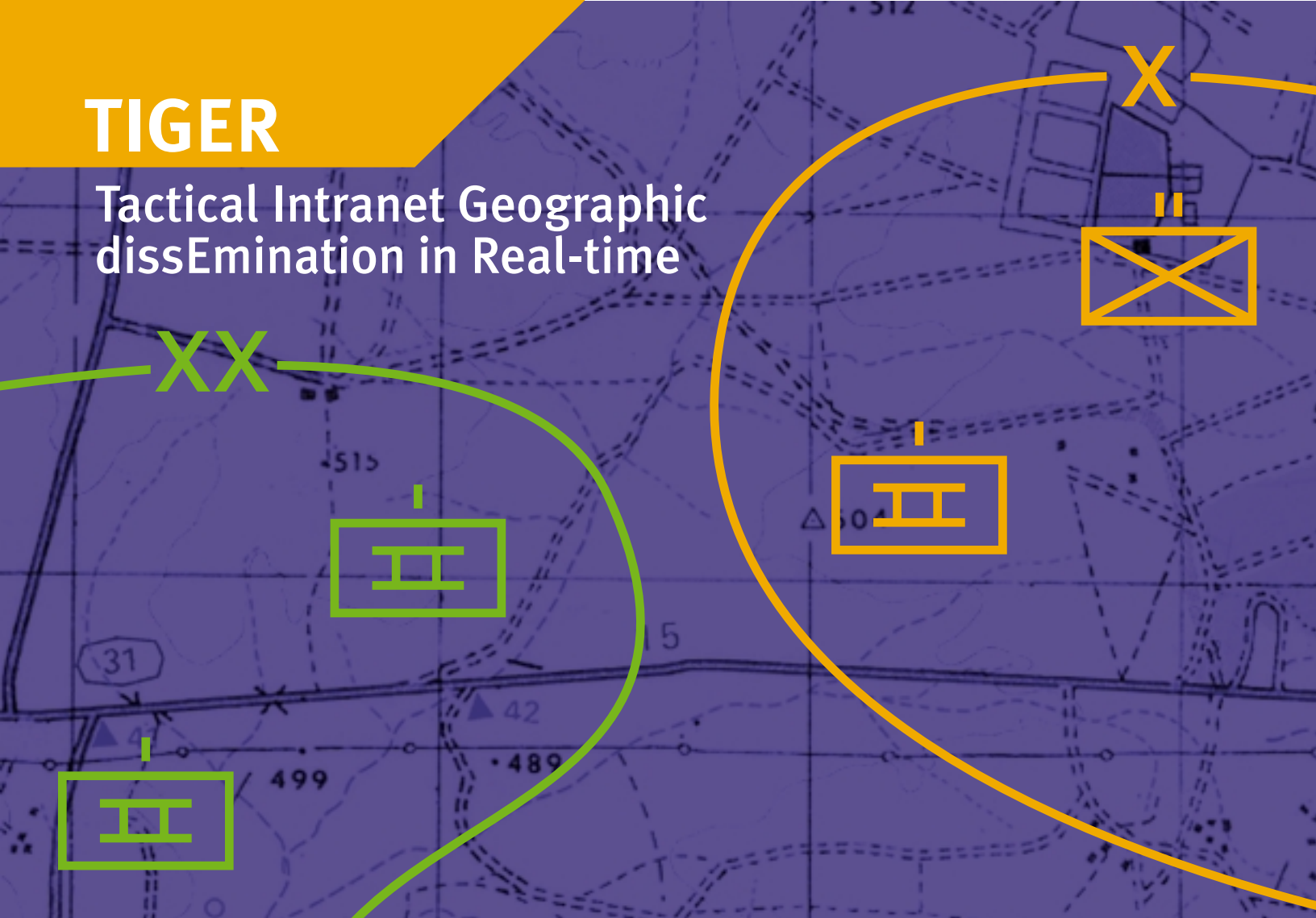
TIGER

Tactical Intranet Geographic dissEmination in Real-time



Taming The Communications Jungle -

Unifying all channels into one dynamic tactical intranet, creating an interest-based, geographic dissemination system

Elbit SYSTEMS Ltd

C4ISR SYSTEMS

TIGER

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Critical Information at the Critical Time

Today's armed forces produce and consume massive amounts of information as they strive to gain the advantage of quality decision-making at the right time. The main tools for achieving this goal are C⁴I applications. But, even the best C⁴I system is only as good as its dissemination and communication infrastructures, especially at the tactical level where the complexity of C⁴I systems and supporting dissemination infrastructures are of critical importance - and, to date, have left a gap unfilled.

This is precisely what Elbit Systems' TIGER solution aims to provide - real-time quality decision-making information to all levels of the fighting forces!

The Relevant Information at the Right Time

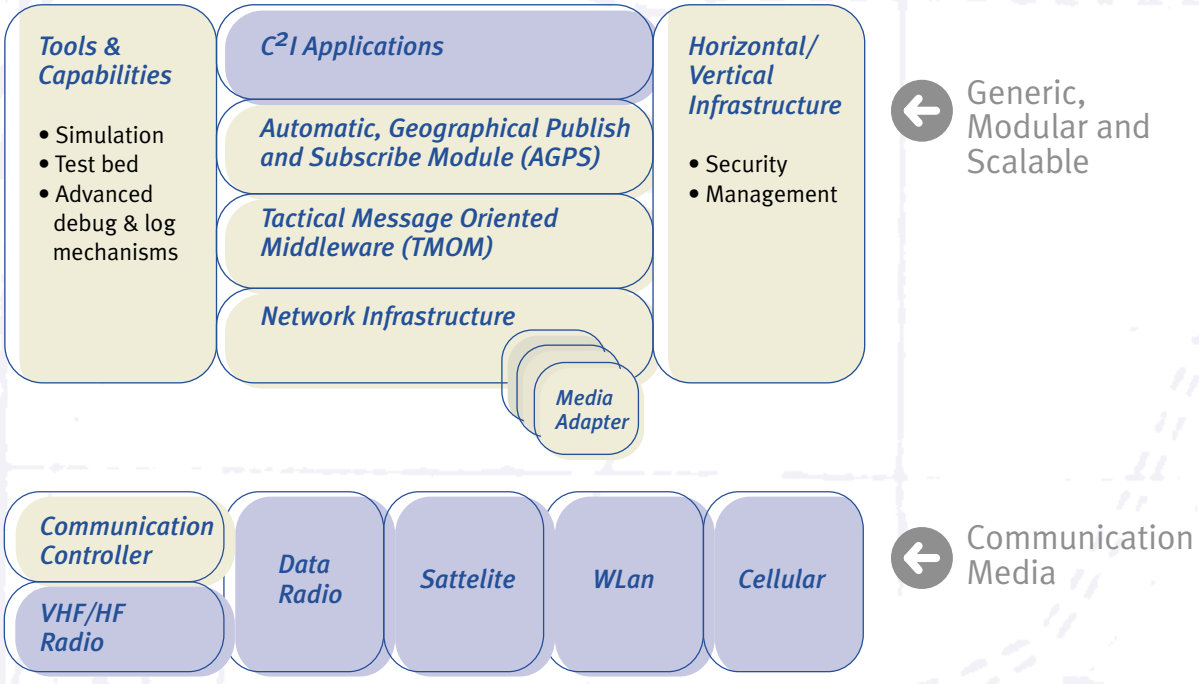
Elbit Systems' TIGER is a state-of-the-art interest and location-based dissemination system. Thanks to its unique, world leading interest and location-based dissemination protocol, based on the "Publish and Subscribe Broker Concept", geographic and interest-based information is disseminated in real time, every time.

Optimum Message Transfer Flow and 100% Guaranteed Message Delivery

TIGER connects C⁴I applications from the theater command level down to the single vehicle level. This tactical communication system combines management and control capabilities with information and system security, resulting in a high-end performance, tactical interest-based dissemination system which supports thousands of independent workstations.

Generic, Modular and Scalable - Tailored to Meet Every Operational Demand

Based on a modular and scalable architecture concept, TIGER is ideal for all C^4I application requirements. Its architecture enables both standard and dedicated applications to co-exist over the same infrastructure, significantly reducing development time and cost. Moreover, its component-based architecture allows every layer and/or component to be upgraded or replaced without affecting other layers/components.



High-end, Innovative Technology

Elbit Systems' TIGER incorporates a unique proprietary network layer, optimized for military tactical environments. This allows TIGER to integrate various communication media - LAN, WAN, Cellular, Data Radio, Tactical Radios, WLAN, Satellite, etc. - characterized by large scale military hierarchical topology, into a single unified fully distributed dynamic and self-manageable homogenous network.

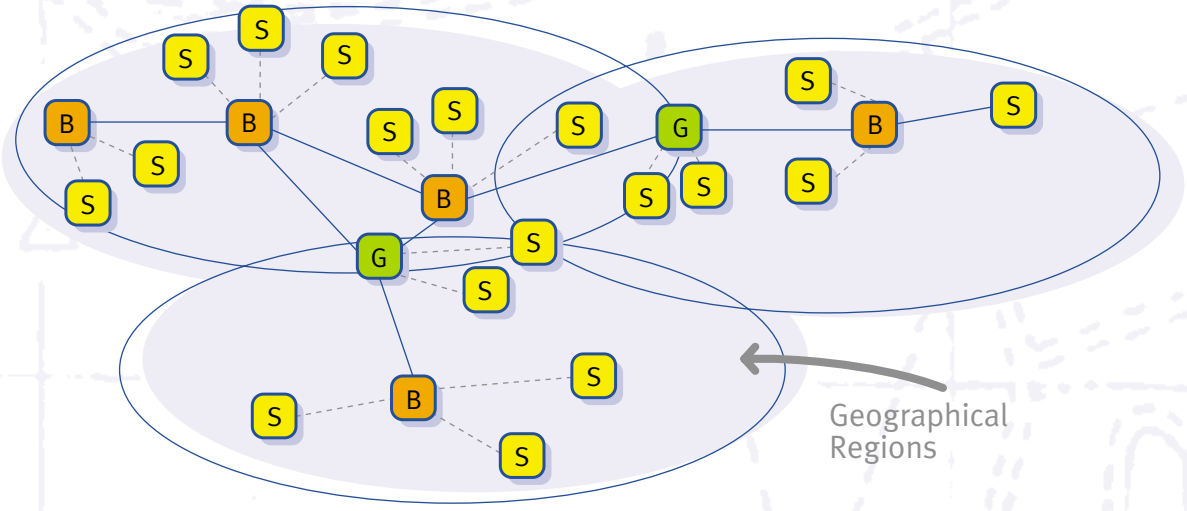
Unique System Highlights

- Subscribers receive ALL, yet ONLY, relevant information, according to defined topics of interest (including subject-related and geographic-related interest)
- Supports large scale (thousands of units) distributed tactical network in which each unit functions as a router
- Self-forming and self-healing - automatic and adaptive learning of highly dynamic network topology, matching the high mobility of today's forces
- Impenetrable multi-layer security architecture supports all existing military-oriented communication channels
- 100% guaranteed message delivery
- Automatic, dynamic, adaptive, and most of all optimized routing of messages
- Simulation and test bed - theoretical simulations of protocols and algorithms as well as comprehensive system test simulation facilities

System Architecture Components and Capabilities

1. Automatic, Geographical Publish and Subscribe (AGPS) Module

A distributed network of brokers transfers information to geographically distributed units, according to their specifically defined topics of interest, current location and other vital parameters. The principle behind this module is that information producers and consumers do not have to be aware of each other. Here's how it works: (1) a consumer defines a topic of interest, (2) sends it along to the broker which then (3) matches the information at hand with the consumer's request. (4) If relevant information exists or when it will be received by the broker, the broker disseminates it directly to the consumer.



The AGPS consists of Stations , Brokers and Gateways .

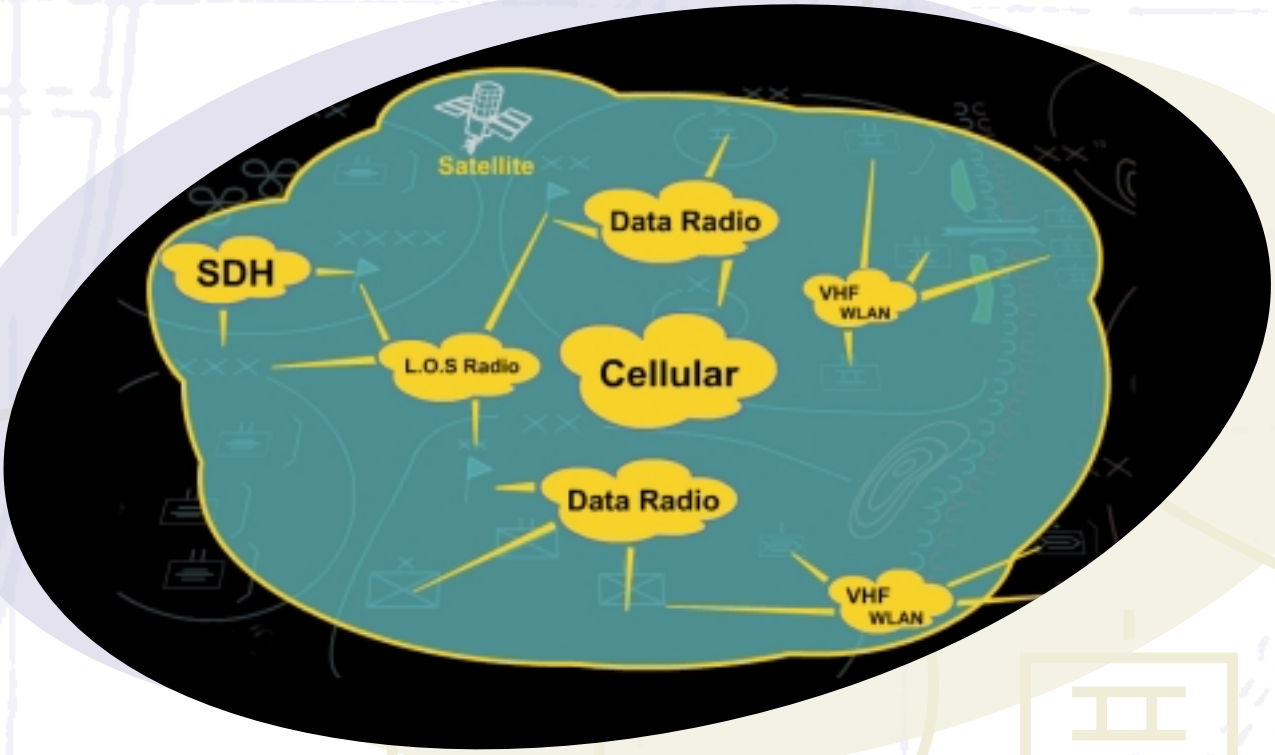
In order to reduce the tactical network's information flow, brokers serve as intermediate servers. They gather subscribers' topics and areas of interest, and disseminate this information. Each broker is responsible for a group of stations and serves as the mediator to the rest of the network. The gateway operates as an "enhanced" broker, connecting the various networks. Thus the network is divided into clusters and the message flow is reduced dramatically.

2. Tactical Message Oriented Middleware (TMOM)

TMOM enables the seamless transfer of messages between military forces, over different communication channels to consumers and C^4I applications. As soon as the TMOM receives a message, it transfers it to its destination in the most efficient and secured manner while making optimum use of available communication channels.

Main capabilities:

- End-to-end, 100% guaranteed delivery using "store & forward" message transfer technique
- Adaptive acknowledgment & retransmission mechanism
- Flow control
- Multiple priority queuing
- Obsolete message replacement and expired message deletion
- Survivability: ability to work in an autonomic regime in any sub-net which is temporarily disconnected from the Tactical Intranet
- Recovery mechanism: e.g. after reconnection to the network, after hardware failure and/or node destruction



3. Network Infrastructure

The Network Infrastructure combines the large scale (thousands of units) distributed tactical sites and the multiple heterogeneous communication media into one dynamic homogenous network.

Main capabilities:

- Self-forming, self-healing - automatic learning of system topology
- Adaptive routing - automatic and dynamic optimal path selection according to the following criteria: shortest path, hierarchy, classification, priorities, connectivity, channel capabilities
- Optimal channel selection according to the following criteria: connectivity, load, channel capabilities, cost, etc.

The network layer assures that all routing information is up-to-date even in the most dynamic connectivity environments. At the same time, its “technical” overhead (control messages) is low even for VHF tactical networks.

4. Media Adapters

The media adapters perform all necessary adjustments for the optimal operation of the system across each communication medium. They isolate the higher communication layers from the communication media. Due to this plug-in concept, it is possible to add or change communication media without affecting the higher layers’ software.

5. Communication Controller

Advanced communication controller for managing tactical communication that includes:

- A variety of customizable MAC protocols that enable optimal use of tactical radio networks
- Advanced FECC

A Strong Foundation Of Expertise

Elbit Systems has extensive and proven experience in Tactical Communication Systems, supporting thousands of users. Our large, proficient team is comprised of experts in the analysis, design, simulation and implementation of unique tactical dissemination systems. Elbit Systems delivers generic, tailor-made Tactical Intranet system solutions to armies worldwide - maximizing message transfer flow and guaranteeing message delivery.

Ready to find out more? Our experts will help you analyze your operational needs and customize an automatic, guaranteed, secure Tactical Communication System that is as cutting edge as it is reliable.

Team up with Elbit Systems and join an alliance enjoyed by military and civilian markets all over the globe.

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